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# THE HONEY INDUSTRY OF MEXICO

*Situation and Prospects*

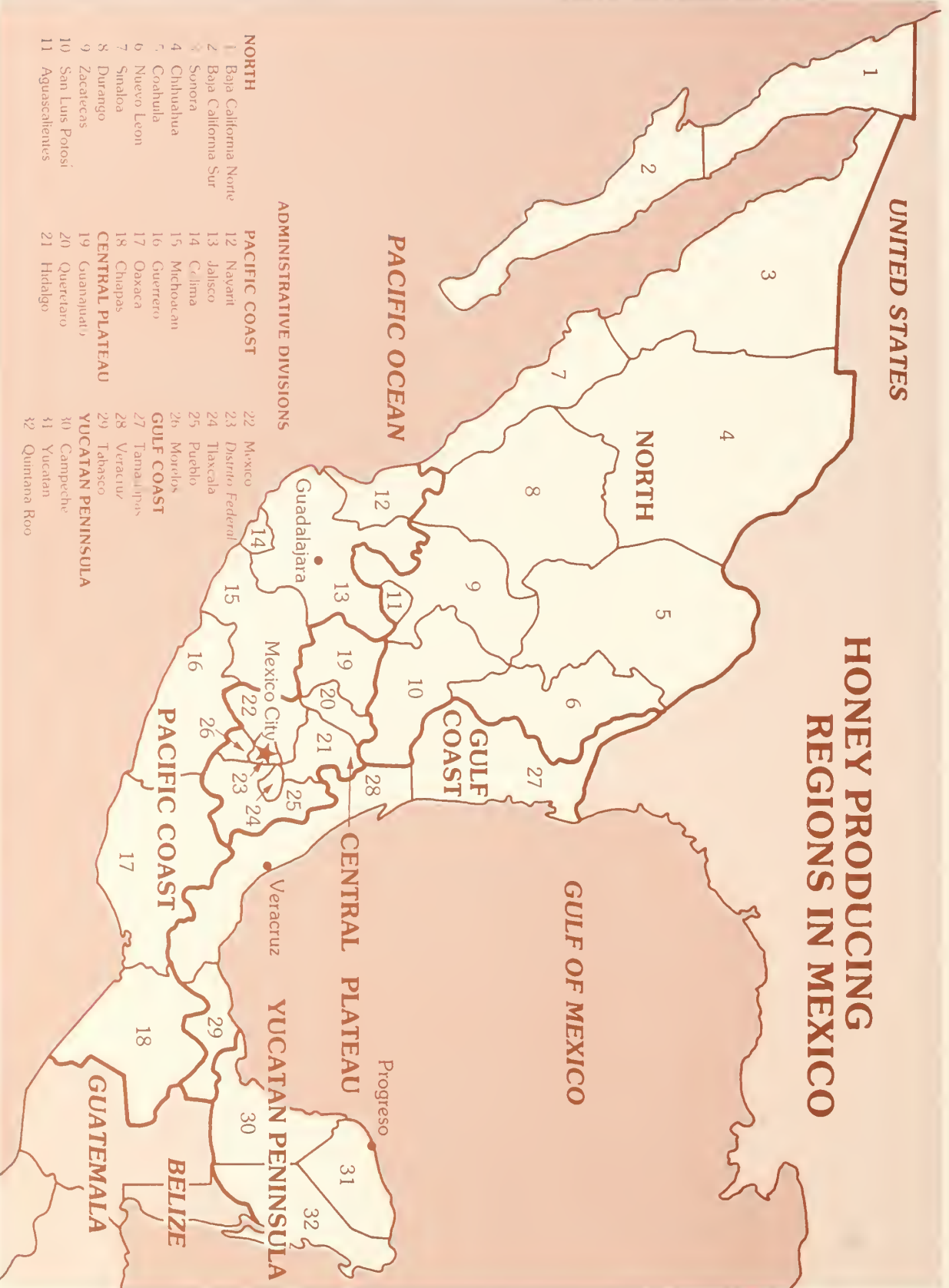


UNITED STATES  
DEPARTMENT  
OF AGRICULTURE

FOREIGN  
AGRICULTURAL  
SERVICE

FAS M-285

# HONEY PRODUCING REGIONS IN MEXICO



## NORTH

- 1 Baja California Norte
- 2 Baja California Sur
- 3 Sonora
- 4 Chihuahua
- 5 Coahuila
- 6 Nuevo Leon
- 7 Sinaloa
- 8 Durango
- 9 Zacatecas
- 10 San Luis Potosi
- 11 Aguascalientes

## ADMINISTRATIVE DIVISIONS

### PACIFIC COAST

- 12 Nayarit
- 13 Jalisco
- 14 Colima
- 15 Michoacan
- 16 Guerrero
- 17 Oaxaca
- 18 Chiapas

### CENTRAL PLATEAU

- 19 Guanajuato
- 20 Queretaro
- 21 Hidalgo

### GULF COAST

- 22 Mexico
- 23 Distrito Federal
- 24 Tlaxcala
- 25 Puebla
- 26 Morelos
- 27 Tamaulipas
- 28 Veracruz

### PACIFIC COAST

- 17

### CENTRAL PLATEAU

### YUCATAN PENINSULA

### BELIZE

### GUATEMALA

## **BACKGROUND ON MEXICO**

TOTAL POPULATION: 65 million

AGRICULTURAL POPULATION: 45 percent of total population

POPULATION GROWTH RATE: 3.5 percent annually

LITERACY RATE: 65 percent

GROSS DOMESTIC PRODUCT (GDP): \$79.3 billion (1976)

AGRICULTURE'S SHARE OF GDP: 12 percent

GDP PER CAPITA: \$1,294 (1976)

TOTAL LAND AREA: 197 million hectares

CROPLAND: 14 percent of land area

PASTURE: 35 percent of land area

WOODS AND FORESTS: 37 percent of land area

IRRIGATED AREA: 4.3 million hectares

CROPLAND PER PERSON IN AGRICULTURE: 0.94 hectares

BEEKEEPERS: 38,000

BEE COLONIES: 2.1 million

YIELD PER COLONY: 30 kilograms (1977)

LAND AREA PER COLONY: 94 hectares

October 1978



# FOREWORD

This report is designed to give an insight into the past trends, current situation, and future prospects of the honey industry of Mexico.

Mexico is the primary exporter of honey in world trade. It is important to the United States both as the main source of imported honey and as the major competitor of U.S. honey in world markets.

The author interviewed representatives of the Mexican honey industry, Government personnel, the staff of the Agricultural Attaché Office in the U.S. Embassy, Mexico City, and others as appropriate. Field trips were made to Mexico's honey producing regions. The available sources of information on Mexico's honey industry were examined. Special credit must be given to Dr. Jose Antonio Zozaya Rubio for certain of the photographs and valuable data.

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Commodity Programs  
Foreign Agricultural Service

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# The Honey Industry of Mexico

## Situation and Prospects

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### SUMMARY

Mexico's honey production has been steadily increasing. Previous gains have come mainly from larger colony numbers, but yield per colony has also risen. Now the world's leading honey exporter, Mexico sells most of its honey abroad, as domestic consumption remains limited. This honey moves to many foreign markets, but primarily to the Federal Republic of Germany and the United States.

Beekeeping is a profitable endeavor in Mexico and a wide variety of honeys is produced. Costs of production appear to be relatively low. Production methods are modern on the larger, more efficient operations. The smaller ones make good use of Mexico's labor surplus.

In the future, Mexico is expected to further develop its honey industry, making even more honey available for the world market. A good floral source base exists, while an abundance of labor for beekeeping is available.

### INTRODUCTION

Mexico has ample floral cover for beekeeping. From its humid coastal lowlands to the slopes of its lofty mountains interspersed with sweeping plateau land, Mexico has the floral sources to make it the world's premier exporter of honey. A wide variety of agricultural crops is grown, while wild flowers of many types are found in noncultivated areas. Some of these sources remain to be developed, and further gains can come from modernizing the beekeeping industry. Utilization of Mexico's land resources has shifted little in the past decade or so, as this table indicates (in millions of hectares):

	<u>1961-65</u>	<u>1974</u>
Cultivated (arable) land	23	26
Permanent crops	1	2
Permanent pasture	74	68
Woods and forests	81	72
Other uses	18	29
Total area	<u>197</u>	<u>197</u>

As little as one-half of the available floral area is presently being utilized by honey bees. However, the best floral sources already have been developed and major future gains in production will not come simply from extension of new bee colonies into underutilized areas as in the past. The arid northern part of Mexico, for example, has a somewhat limited amount of good floral cover and honey production is unlikely to greatly expand in most areas except where irrigation is developed.

Honey has been produced in Mexico for many centuries. The pre-Mayan tribes of the gulf coast used bees to obtain both honey and wax. The Mayans on the Yucatan Peninsula themselves were great bee raisers over a thousand years ago, utilizing the stingless bees they believed to be favored by the gods. Special effort was made not to hurt the bees when handling them. Honey was made into beverages, wax was melted into candles, and both honey and wax were used in medicines. The excess honey was exported to other Mexican tribes. Beekeeping was forbidden during the latter part of the colonial period to protect Spain's own honey industry, but was resumed again after Independence.

From this tradition of consuming limited amounts of honey as food, while exporting ever-increasing quantities, has grown the present pattern of Mexico's

honey industry. Several times as much honey is exported as is consumed internally, giving Mexico its first place position as a world honey exporter.

## SUPPLY AND DISTRIBUTION

Production has advanced, particularly in the last several years. Exports have also grown, reaching a record level in 1977. Consumption has grown fairly steadily, but remains only a small proportion of the honey produced in Mexico. This is a result both of tradition and of the feeling that honey is too costly, especially in the rural areas where it is produced.

Annual stock changes were minimal between 1965 and 1973. In 1974 a large honey crop, coupled with a poor export year, culminated in a substantial buildup in stocks, nearly 12,000 tons of honey were added to stocks in that year. These large stocks were maintained for 2 years, until 1976 when strong export demand and other factors drew stocks down.

### MEXICO: HONEY PRODUCTION, EXPORTS, CONSUMPTION, AND STOCK CHANGES, 1965-77.

*(In thousands of tons)*

Year	Production	Exports	Consumption	Stock Changes <sup>1</sup>
1965 . . . .	28.0	23.6	4.5	-0.1
1966 . . . .	34.0	27.8	5.5	+0.7
1967 . . . .	28.0	23.7	4.5	-0.2
1968 . . . .	36.0	30.4	6.0	-0.4
1969 . . . .	33.0	26.0	6.5	+0.5
1970 . . . .	30.0	22.6	7.0	+0.4
1971 . . . .	25.0	17.3	7.5	+0.2
1972 . . . .	38.0	31.1	7.0	-0.1
1973 . . . .	33.0	25.3	7.0	+0.7
1974 . . . .	42.0	22.2	8.0	+11.8
1975 . . . .	38.0	30.1	8.0	-0.1
1976 . . . .	44.0	47.8	7.5	-11.3
1977 . . . .	60.0	53.0	7.0	0

Source: FAS Horticultural and Tropical Products Division, Commodity Programs.

<sup>1</sup> (+) denotes the increase in stocks; (-) denotes the decrease. Stock changes are estimated as the residual of production less exports and domestic consumption.

## PRODUCTION

### Beekeepers

There are an estimated 38,000 beekeepers in Mexico. No breakdown on the number of beekeepers by number of colonies<sup>1</sup> kept is available. However, the average Mexican beekeeper has about 55 colonies.

<sup>1</sup> Social community of several thousand bees including one queen bee.

Beekeeping units in Mexico range up to around 25,000 hives.<sup>2</sup> The largest producing units tend to use modern production methods and usually have modern Jumbo or Langstroth hives.

The producer with a small number of colonies is more likely to have rustic-type<sup>3</sup> hives. He is often handicapped because of financial limitations and lack of education. On the financial side, it is difficult for the small producer to obtain credit through private sources because he cannot offer adequate security. Although literacy is improving, lack of education remains a distinct barrier to technological advancement in the Mexican honey industry. The literacy rate for all of Mexico is 65 percent, but this percentage is considerably lower in the rural areas.

Beekeepers are provided with training courses, technical guidance, technical conferences, and inspection visits to beekeeper sites. Producers are encouraged to join associations and, in the case of the Yucatan Peninsula, cooperatives. Several beekeeping extension centers are scattered around the country, but they are too few to be very effective except in the Yucatan. There are also a few small apiculture research centers and laboratories. An effort has been made to extend supervised credit to beekeepers in order to modernize and expand the industry. Several Government banks operate in this field and some limited success can be seen, particularly on the Yucatan Peninsula.

A sizable proportion of Mexico's beekeepers reside in semi-communal villages (ejidos). Each ejido farmer is assigned a piece of land by the government, usually for crop growing. The pasture and livestock, including bees, however, may be owned by the whole village, and certain members of the village are chosen to be beekeepers. The proceeds from this type of beekeeping operation go to the entire ejido. Many other small beekeepers, both on ejidos and off, operate on a private basis. Relatively few of Mexico's beekeepers are hobbyists, however, as in European and certain other countries.

### Methods

Production methods in the Mexican honey industry are labor intensive. This is true even of the beekeepers with the largest number of hives. Although modern extractors and packing sheds are used on the large units, many employees are involved in the various stages of production and processing. This is normally the case in countries such as Mexico where labor is plentiful and wages are low. A few of the production methods commonly used by beekeepers in Mexico are:

<sup>2</sup> Man-constructed home for bees, each containing one colony of bees.

<sup>3</sup> A rustic hive is any nonmodern hive. A modern hive for purposes of this study is either a Jumbo or Langstroth hive.

	<u>Over 50 hives</u>	<u>Under 50 hives<sup>1</sup></u>
Bee stock	European or hybrids	Native
Type of hive	Modern	Rustic
Lifespan of hive (average)	8 years	Few years
Extraction	Electric or hand-cranked centrifugal extractor	Squeezed by hand
Insecticide control	Move bees, cover hives, etc.	Little or none
Disease control	Use medicines to control foulbrood, noseimiasis, fungus diseases, and October disease	Little or none
Feeding of bees	Sugar water	None normally
Transportation	Trucks	By carts or by hand

<sup>1</sup> Beekeeping in the Yucatan is a major exception, tending to be technologically advanced, even though each beekeeper probably averages less than 50 hives.

## Regions

For the purposes of this report, Mexico can be divided into five honey production regions (see map,

inside cover). These regions are as follows, with the numbers of hives by type (in thousands, according to the 1970 Census of Agriculture):

### TYPES OF HIVE

<u>REGION</u>	<u>MODERN</u>	<u>RUSTIC</u>	<u>TOTAL</u>
North	170	210	380
Pacific Coast	185	250	435
Central Plateau	200	235	435
Gulf Coast	63	122	185
Yucatan Peninsula	<u>145</u>	<u>70</u>	<u>215</u>
Total	763	887	1,650

The largest number of colonies are in the Central Plateau and Pacific Coast regions. Only in the Yucatan Peninsula do modern hives outnumber rustic hives.

Estimated production in the five regions was in 1977 as follows, according to trade and other sources (in percent of Mexico's total production):

North	11
Pacific Coast	28
Central Plateau	13
Gulf Coast	11
Yucatan Peninsula	<u>37</u>
Total	100

There probably has been some shift in colony numbers in the various regions since 1970. This, combined with differing yields per colony in the various regions, accounts for this distribution in honey output. The major producing area in 1977 was the Yucatan, followed by the Pacific Coast. These two regions accounted for 65 percent of the 60,000 metric tons produced in 1977.

A wide range of conditions exists between regions and even within some regions.

The Yucatan Peninsula is probably the most homogeneous of the five regions. It is nearly level and lies just above sea level. There are alternating wet and dry seasons. The natural vegetation is scrub forest and



few agricultural crops can be grown. Henequen, a perennial hard fiber, is the major crop. Wild flowers grow fairly profusely in the noncultivated areas and are readily available to honey bees. Honey production, therefore, is a good source of cash income in the Yucatan. The main flowering seasons are: January-March for Thajonal, April-June for Dzitzilche.

In the Pacific coast region, the lower areas have a tropical wet and dry climate, but away from the coast the terrain becomes more mountainous and a high-land climate predominates. Here the temperature is cooler and rainfall tends to be more spread out during the whole year. Wild flowers are the main floral source for bees.

The Central Plateau area is the most densely populated area of Mexico. It has a semiarid climate. The rainfall season runs from May through October with a long growing season and mild temperatures. Cultivation is concentrated on the level plateau areas between the mountains. The mountain sides have various wild floral sources for beekeeping. The main honey flow seasons are March-April and September-November.

Further to the east, the gulf coast has steeply sloping areas that become more level and low-lying near the coast. The region has heavy rains, high humidity, and extreme heat. Brahman cattle have been introduced and pastures have been developed. The citrus industry is being developed and a wide range of tropical and other products are grown. Wild flowers are also found in the forested areas.

The northern region of Mexico is very dry and floral sources are sparse in most areas except where irrigation is used. Cotton, safflower, soybeans, and alfalfa/clover are irrigated in several scattered areas. Major irrigated areas exist in the States of Sinaloa, Sonora, and Baja California North, and these three States contain most of the modern hives found in the region. The two States of Zacatecas and San Luis Potosi had the largest concentrations of rustic colonies in the North in 1970 (table 1, Appendix I).

## Colonies

The relatively ample floral sources in Mexico have been the basis for the past increase in colony numbers. The arid North appears to be the only part of Mexico that has areas barren of floral sources for bees.

Colony numbers slightly exceed 2 million at the present time. This compares with 1.65 million in the census year of 1970 (see table 1, Appendix I). Slightly over one-half of the total colony numbers are of the modern type compared with 46 percent in 1970. The Mexican Government provides new modern hives to beekeepers at low cost.

The Central Plateau is the most crowded beekeeping region in Mexico. The State of Jalisco on the

Pacific coast had the largest number of colonies in the 1970 census, but this State is larger than any of the Central Plateau States. Veracruz was a close second in 1970, although this is also a large State with developing floral sources.

The Langstroth hive is prevalent on the Yucatan Peninsula. In the rest of Mexico the Jumbo hive is the most common modern hive used. A wide variety of rustic hives are used, such as: Box (homemade)—common in all areas; fruit box—tropical areas; maguey cactus (trunk)—Central plateau; basket (horizontal sticks)—Central plateau and north; hollow palm or other trees—Both coasts and north; and ceramic pot—many areas.

Italian and other European bees or European-native crosses are usually used in the modern hives. Native or criollo bees are commonly found in the rustic hives. The black stingless bees of the Mayans are seldom used for honey production, but are found wild in the Yucatan area.

## Yields

Yields per colony in Mexico were considerably higher during 1977, partly because of favorable weather. The yield per colony was an estimated 30 kilograms in 1977, compared with 19 kilograms in 1975 and 20 kilograms in 1976.

Yields per colony in Mexico compare favorably with those of other producing countries. Yields are similar to those in the United States. Much greater yields are obtained by producers utilizing the modern hives than the rustic. An estimated 30-35 kilograms are produced on the average in the modern hives, while only 4-7 kilograms are obtained from the rustic hives. As more of the modern hives are used, yields can be expected to rise accordingly.

HONEY: COLONIES, YIELD, AND PRODUCTION IN  
SELECTED COUNTRIES, 1975

Country	Colonies of bees	Yield per colony	Production
	<i>1,000 colonies</i>	<i>Kilo- grams</i>	<i>1,000 metric tons</i>
Argentina . . . . .	720	33	23.6
Australia . . . . .	457	45	20.6
Canada . . . . .	508	42	21.1
Chile . . . . .	469	15	6.9
France . . . . .	1,100	8	9.0
Germany, West . . . .	1,022	9	8.8
Israel . . . . .	60	32	1.9
Italy . . . . .	770	8	6.3
Japan . . . . .	306	21	6.3
Mexico . . . . .	2,000	19	38.0
United States . . . . .	4,163	21	89.1
United Kingdom . . .	228	12	3.7

## Production Level

Mexico's honey production has increased sharply since 1965.

The United States, the Soviet Union, and the People's Republic of China are larger honey producers, but most of the honey produced in each is consumed within the country (table 2, appendix I). In Mexico, honey is produced primarily for export, as in Argentina, Australia, Cuba, and Guatemala.

While Mexico's honey output has risen steadily, there have been variations from year to year because of changes in the weather. During the period between 1965 and 1977 honey production fell in 6 of the 12 years. However, production rose overall by 68 percent from 1965-66 to 1976-77:

<u>Year</u>	<u>Production</u> <u>1,000 tons</u>	<u>Percent</u>
1965-66 average	31.0	100.0
1976-77 average	52.0	167.7

During the same period, colony numbers increased by an estimated 35 percent, and yields per colony rose around 25 percent.

## Types of Honey

Elevation is an important factor in determining the type of honey produced in Mexico. At the lower elevations along the coasts, the honey tends to be darker, often amber, in color depending on the flower source. At the medium elevations—back from the coast as the land slopes upward to the plateau—or in the Yucatan, the color is likely to be light amber or extra light amber. At the highest elevation, the honey tends to be light and in some cases even white in color. Moisture content generally decreases with elevation.

A few of the representative honeys produced in Mexico are as follows, by region:

<u>Region</u>	<u>Type of Honey</u>
North	Mesquite, cotton, safflower, soybean, alfalfa/clover.
Pacific coast	Mixed flower, Guadalajara yellow creamy, brush
Central Plateau	Wildflower, highland yellow creamy, white.
Gulf coast	Orange blossom
Yucatan Peninsula	Yucatan light amber, Yucatan dark (manufacturing) grade, special orange blossom grade

Yucatan honey is probably the most common kind of honey produced in Mexico. It is consistently the same from year to year and over the whole region. In fact, most of the Yucatan honey is mixed from the various parts of the Peninsula into one type of honey—Yucatan, light amber. It has by law a maximum moisture content of 19 percent.

Many of the other honeys of Mexico are also blended, such as mixed flowers and brush honey. Honeys that are called by their floral source are also available. Mexican orange honey from the gulf coast and the Yucatan is becoming more prominent as Mexico's citrus industry is developed and bees are used for pollination. In April 1978, orange blossom honey commanded the highest price of the quoted Mexican honeys for export.

## Production Costs

A complete breakdown of the cost of producing honey in Mexico is not available. However, a rough estimate of the total cost of producing a kilogram of honey in 1977 is about 38 cents, according to industry sources, compared with an estimated 25 cents per kilogram in 1975. Inflation caused part of the increase.

Some of the items involved in producing honey in Mexico are:

Equipment (the major cost item)—Hand-cranked extractors are used by small producers with modern hives. Honey is often squeezed by hand from the rustic hives. Modern hives are provided at cost by the Government.

Labor (roughly 20 percent of total costs according to trade sources)—Some small producers trade labor, at least at extracting time.

Transportation—Small producers move drums by oxen or by hand.

Drums or other containers—Some exporters provide drums to beekeepers.

Feeding—Retail sugar prices are controlled at a low level. However, there is little feeding of bees in Mexico.

Depreciation—The Government estimates the life of modern beehives at about 8 years, but some of the rustic hives must be replaced each year.

Medicines—Some provided free at extension centers.

Comb renewal—The Government provides some at cost.

The Mexican Government is furnishing "Family Bee Packages" to prospective beekeepers at a price equivalent to \$85. The package consists of two nucleus hives with equipment. The new beekeepers are told they can expect to produce 90 kilograms of honey and 2 kilograms of beeswax annually from each package, enough to provide an annual income of \$60 (based on 1978 producer prices).

The average beekeeper in Mexico probably received around 60 cents per kilogram for his honey in 1977. With production costs of around 38 cents per kilogram, the average beekeeper's profit was at least 22 cents per kilogram.

## MARKETING CHANNELS

Honey is marketed in a number of ways in Mexico. Relatively little honey is given away to friends or sold in rural areas for consumption as honey usually is considered too expensive for home use.

The very largest producers usually engage in direct export sales. Their domestic sales may be through their own retail store or home, to institutions including schools, and to other retail outlets. The larger producers usually have their own quality standards and sell on samples.

The smaller individual producer is more likely to sell to a middleman or directly to a private exporter. The exporter will usually sell to importers overseas on a sample basis.

The small producer who belongs to an association or cooperative usually allows the organization to do his marketing and price negotiating. This is the case both for individual beekeepers and for members of ejidos who belong to associations or cooperatives.

In the case of Yucatan, the beekeepers belong to cooperatives. The Government does most of the marketing, although one or two of the cooperatives were still handling their own marketing at last report. In the rest of Mexico, however, the exporting is usually done by associations or by private exporters.

## DOMESTIC CONSUMPTION

Per capita honey consumption has been rising gradually. Domestic honey consumption remains limited in Mexico, accounting for only 14 percent of the honey produced during 1976 and 1977. However, honey consumption increased by 45 percent between the 1965 and 1966 average and the 1976 and 1977 average but declined in 1976 and 1977 when export demand was especially strong. Consumption is not expected to recover in 1978 since prices are high and supplies are not plentiful.

Honey is considered to be a luxury food item in Mexico because of its price compared with the disposable income of the populace. The long tradition of not consuming honey in Mexico is also important. Some comparisons with selected other countries are as follows:

<u>Country</u>	Honey Consumption
	<u>Per Capita</u> <u>(in grams, 1975)</u>
Mexico	135
Germany, West	1,100
United States	510
Soviet Union	445
Japan	220
Argentina	170
Guatemala	65

## EXPORTS

Mexico has been the world's largest honey exporter for some time. In 1977, Mexico was followed by the People's Republic of China (PRC), Australia, and Argentina. In 1975 and 1976, Argentina ranked second trailing Mexico. The PRC is making an effort to develop its beekeeping industry and exports honey for needed foreign exchange. Australia is gradually moving upward as a honey producer and exporter, but had an off year in 1977. In 1977, Mexico accounted for 37 percent of all world honey exports (table 3, appendix I).

West Germany is the world's largest honey importer. The United States became the second largest importer in 1975. Japan is now third, followed by the United Kingdom. West Germany accounted for 33 percent of the world's honey imports in 1977 (table 4, appendix I).

West Germany imports honey from many countries, but Mexico is its largest source. In 1977, about 41 percent of its total honey imports were from Mexico (table 5, appendix I).

However, the United States is becoming an increasingly important destination, accounting for 33 percent of Mexico's exports in 1977. The United Kingdom, Switzerland, Italy, Japan, and Belgium are other major markets. The United States obtained 59 percent of its imported honey from Mexico in 1976 and 1977; Argentina is another important source (table 6, appendix I).

Mexico's honey prices have continued to rise in recent years. The highest priced honey now comes from the gulf coast region as orange honey has become more important. Yucatan honey also has made a steady advance in price as processing has been



**MEXICO: HONEY EXPORTS BY COUNTRY OF DESTINATION, AVERAGE 1968-72,  
ANNUAL 1974-77  
(In metric tons)**

Country of destination	Average 1968-72	1974	1975	1976	1977 <sup>1</sup>
Belgium . . . . .	516	646	548	589	614
Germany, West . . . . .	16,103	13,662	22,332	27,251	28,466
Italy. . . . .	199	0	0	424	792
Japan. . . . .	334	403	39	( <sup>2</sup> )	690
Netherlands . . . . .	382	239	181	( <sup>2</sup> )	35
Switzerland . . . . .	1,226	910	911	753	918
United Kingdom . . . . .	1,096	764	1,042	1,701	3,092
United States . . . . .	5,478	5,283	4,955	16,392	17,429
Other. . . . .	150	261	89	727	997
<b>Total</b>	<b>25,484</b>	<b>22,168</b>	<b>30,097</b>	<b>47,837</b>	<b>53,033</b>

<sup>1</sup> Preliminary.      <sup>2</sup> If any, shown in other.

Source: Official trade statistics of Mexico.

improved and it has become more accepted in world markets. Pacific coast honey is the lowest priced Mexican honey available (table 7, appendix I).

Some recent honey prices (March 16-April 15, 1978), as quoted in Hamburg were as follows (in U.S. dollars per kilogram, c. and f., mostly prompt shipment): Yucatan, light amber—\$0.92; Guadalajara, yellow creamy—\$1.01; Highland, yellow creamy—\$1.02; and Orange blossom—\$1.07.

Although light amber is the most common type of Yucatan honey quoted in foreign markets, others include extra light amber, special orange blossom grades, and dark grade. The Yucatan orange honey usually is priced considerably above light amber. Extra light amber is slightly higher than light amber, while dark grade is priced lower.

Mexico's honey exports have moved upward with some yearly fluctuations. In 1976, the large stocks of honey that had been on hand since 1974 were exported. World demand became stronger in 1976 following 2 years of sluggish world honey output. The old-crop carryover honey also was offered at a reduced price in 1976. Finally, Mexico devalued its currency late in 1976, making Mexico's exports more attractive to foreign buyers.

In 1977, Mexico's honey exports of 53,000 tons were a record, that year's honey outturn having provided ample supplies. Also, domestic consumption was down from that of earlier years. Export availabilities, therefore, were somewhat above those of a year earlier.

Practically all of Mexico's honey is exported in bulk. It is usually placed in drums of 290 to 320 kilograms, gross weight. The drum itself weighs about 20 kilograms. Mexican honey is or is not heated, according to the customer's wishes. Payment is

**MEXICO: HONEY EXPORTS, 1965-1977**

Year	Quantity	Value	Unit Value
	<i>Tons</i>	<i>1,000 U.S. dol.</i>	<i>Cents per kg.</i>
1965 . . . . .	23,623	4,523	19.1
1966 . . . . .	27,786	5,154	18.4
1967 . . . . .	23,679	4,798	20.3
1968 . . . . .	30,393	5,832	19.2
1969 . . . . .	25,990	5,413	20.8
1970 . . . . .	22,623	5,389	23.8
1971 . . . . .	17,316	4,628	26.7
1972 . . . . .	31,096	12,114	39.0
1973 . . . . .	25,259	17,319	68.6
1974 . . . . .	22,168	18,216	82.2
1975 . . . . .	30,097	20,803	69.1
1976 . . . . .	47,837	26,183	54.7
1977 <sup>1</sup> . . . . .	53,033	42,161	79.5

<sup>1</sup> Preliminary estimate.

Source: Official trade statistics of Mexico.

usually made by letter of credit, although a down payment is sometimes obtained.

Yucatan honey is relatively consistent. Most of it is offered as light amber, 19 percent maximum moisture. It is nearly the same from 1 year to the next and honey from the different parts of the Peninsula is blended to make Yucatan, light amber honey.

Honey from the rest of Mexico is more varied. Samples are usually offered on export honey and customer preference is taken into account. Quality control is exerted by the firm or association itself, according to its own standards.

Mexican honey is often blended with Argentine honey in Europe, as it is blended with American

# Producing Honey for Export in Mexico



1



2

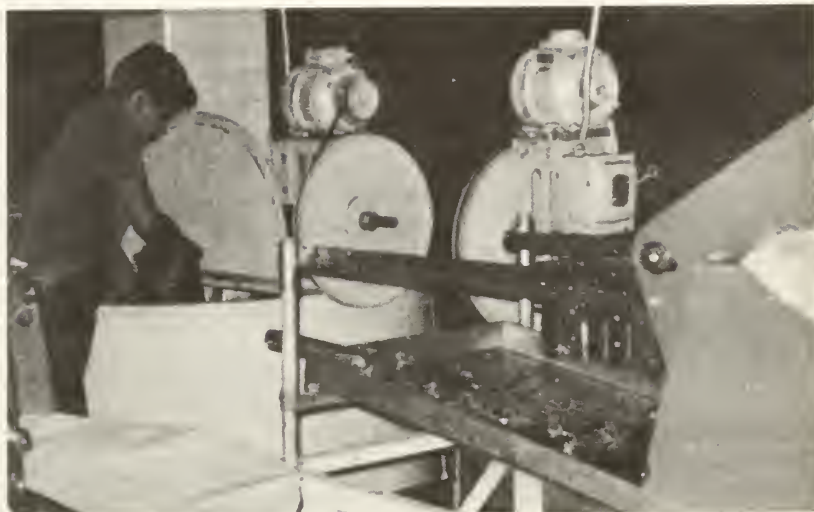


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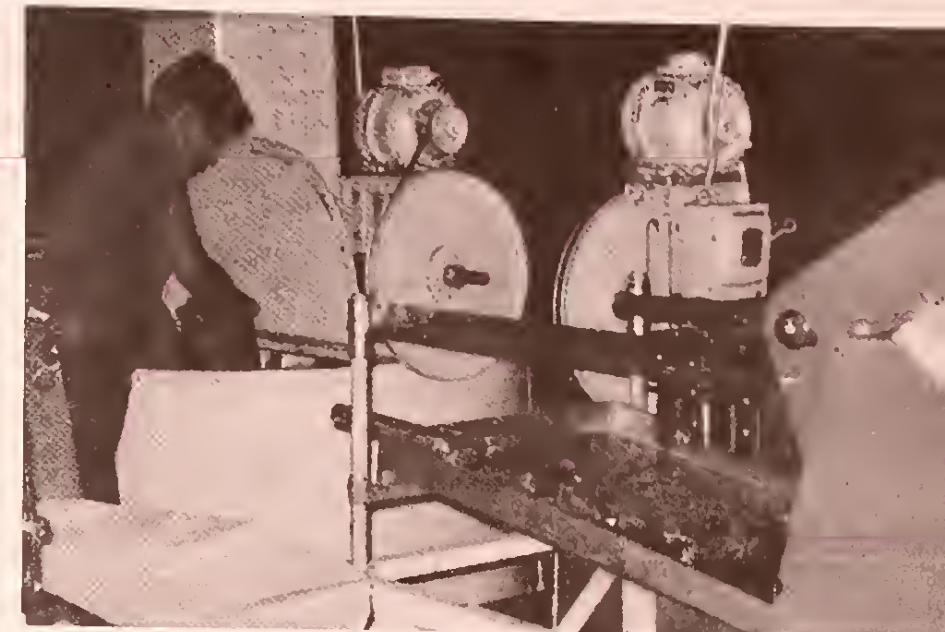
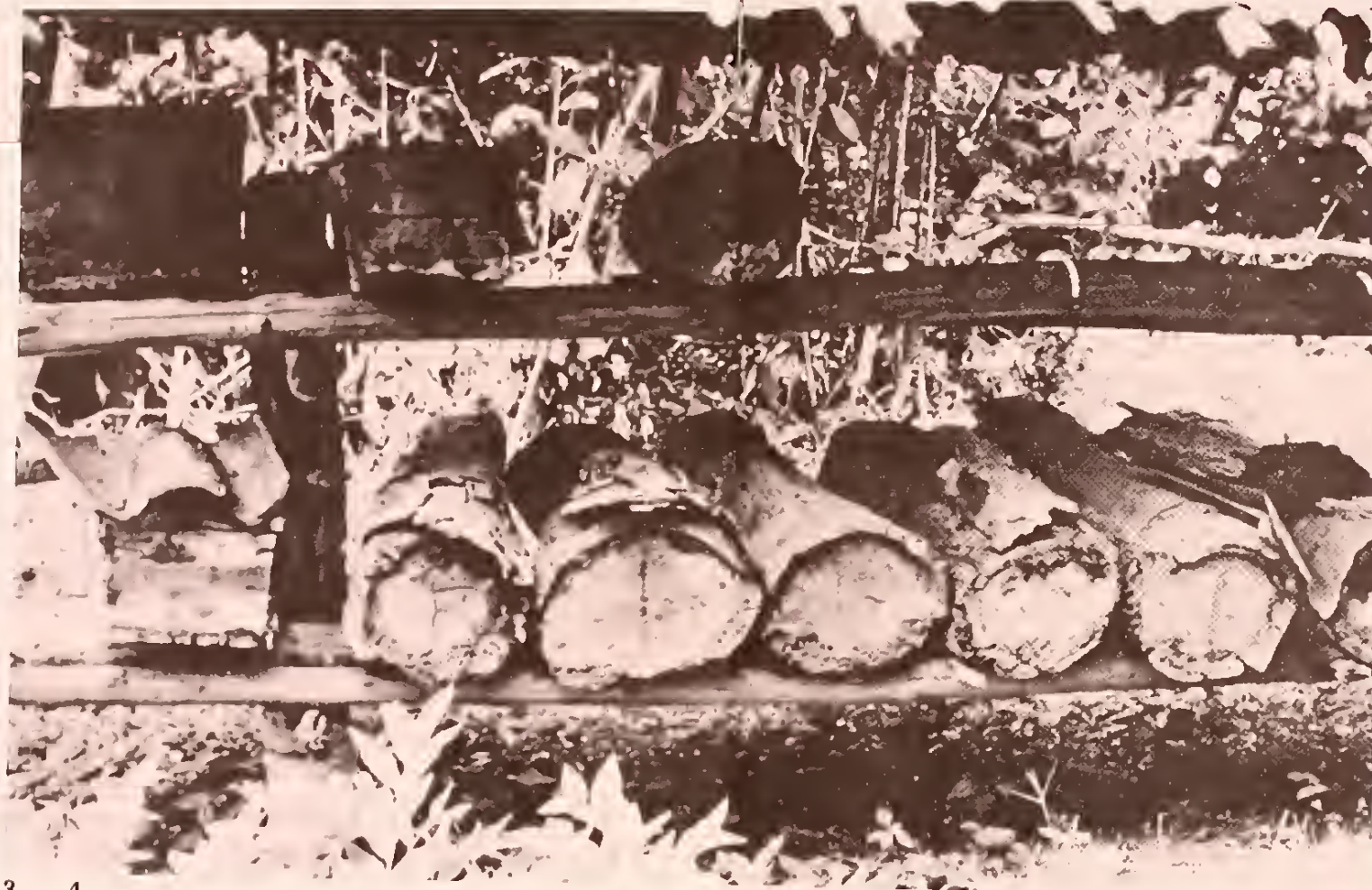
6

1. Beekeepers attending meeting to discuss production methods in the state of Yucatan.
2. An experimental bee yard at a beekeeping extension center.
3. 4. Honey is produced in both rustic-type hives such as the hollow logs and homemade boxes, above, and in modern hives, below.
5. Placing frames in a modern extractor which removes honey from the comb.
6. Honey in drums waits to be exported.





# Producing Honey for Export in Mexico



1. Beekeepers attending meeting to discuss production methods in the state of Yucatan.
2. An experimental bee yard at a beekeeping extension center.
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honey for sale in supermarkets in the United States. Relatively little Mexican honey is now used in baking or other manufacturing uses in the United States as in the past.

## GOVERNMENT POLICIES

### Advance Payments

Advance payments are made to beekeepers, mainly in the Yucatan. In 1974, the last year for which complete data is available, an advance payment of 72 cents per kilogram was made at the beginning of the flow (January-March). Settlement was made during August-October at 82 cents per kilogram. A total of \$10 million in advanced payments were made in that year on 14 million kilograms (14,000 tons) of honey. Thus, advance payments were made on around 33 percent of the 42,000 tons of honey produced in Mexico in 1974.

Since 1974, advance payments have amounted to the following (in cents per kilogram): 1974-72; 1975-48; 1976-42; 1977-33; and 1978-62.

Before final settlement is paid to the beekeepers in the Yucatan Peninsula, the Government deducts such costs as packing, interest, State and Federal taxes, transportation, and operating costs. By law, no profit is made by the Government. The advance payment scheme acts more as a partial loan than as a price support since settlement is above the advance payment.

### Quality Control

Official quality standards on honey were issued in 1958, but apparently are not enforced. Most exporters, however, have their own quality standards.

A certificate of quality issued by the Instituto Apicola de Yucatan recently on a sample of Yucatan honey contained the following information:

- Type of floral source - Dzitzilche
- Color - Light amber
- Photometric transmission (Leitz) - 28 percent
- Pfund scale - 64 mm
- Smell & taste - Normal, agreeable, unique
- Refraction (C&L) at 20° Centigrade - 1.4915
- Humidity (B&L) - 18.0 percent
- Density (Chataway) - 1.4171
- Proof of heating - Negative (less than 1 mg percent of HMF)
- Diastase (Schade) - 24
- Grade - U.S. Grade B

Yucatan honey may not exceed 19 percent moisture.

In addition, the Government inspects processing plants to see that sanitation standards are met.

## Export Taxes

Both Federal and State taxes are assessed on honey exports. For some time the Federal tax amounted to 1 percent; then in September 1976 (about the time of the devaluation of the Mexican peso), the tax was raised to 80 percent. In October of the same year, it was reduced to 9 percent and finally, in November, it was lowered to 5 percent, the current level. This tax is based on an official price that appears on the export license.

In the case of States, the tax is equivalent to 1.20 cents per kilogram in Yucatan, Campeche, and Quintana Roo. In the other regions, the tax varies from zero to 0.88 cents per kilogram.

## Minimum Export Prices

Minimum export prices apply only in the Yucatan Peninsula. These are set by a Peninsular committee consisting of seven members, including each of the Governors of the three states in the Peninsula, and two representatives of the honey industry in Yucatan—one from Campeche and one from Quintana Roo. The chairman is one of the four industry members on a rotating basis.

The minimum export prices for Yucatan, light amber honey have averaged as follows during recent years (in U.S. dollars per ton f.o.b., Progreso): 1974-925; 1975-725; 1976-640; 1977-730; and 1978<sup>1</sup>-890.

The minimum price was very high during 1974, a year when large stocks were built up. The price was much lower in 1976, the year of record exports when stocks were reduced. In August 1977, Yucatan honeys were selling at the following average prices for the different grades (per metric ton, f.o.b., Progreso): Orange blossom-\$980; Extra light amber-\$760; Light amber-\$730; and Dark (manufacturing)-\$670.

Old crop (1977) Yucatan light amber honey was quoted in May 1978 at \$750 per ton (f.o.b.) while new crop (1978) honey was quoted at \$920 (c.&f.).

## FUTURE PROSPECTS

With weather favorable in nearly all areas, Mexico's honey production in 1977 went record high. However, stocks were not built up as the crop found a ready market in foreign countries. The weather was not favorable in early 1978, particularly in the Yucatan, and the outturn is likely to be down from

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<sup>1</sup> January-April only.

the 1977 level. Exports, likewise, are expected to be lower in the current year.

In the longer term, Mexico's honey production is expected to continue to increase. Trade and other sources estimate that as much as two times the present floral source area could become available in the future if all floral resources were developed and used for beekeeping. However, the potential floral sources are not as good, on the average, as those presently being utilized. Some new sources will become available as agriculture is further developed through irrigation and by other means.

In the past a large part of the honey output expansion came from increased colony numbers. In the future, more reliance will have to be placed on increasing yields per colony through the use of modern hives and other technological improvements.

Further production increases in the Central Plateau region will have to come mainly from better yields, since most of that area's present floral sources are being used. The States of Tabasco and Chiapis have especially good potential because of their ample floral sources and developing agriculture.

Major obstacles to the development of Mexico's honey industry include lack of financing, low educational levels, poor technology, lack of research, and considerable use of unimproved bee stock. Although there are substantial beekeeping extension services in the Yucatan, they are somewhat limited in the rest of Mexico. However, a good floral source base and an abundance of labor exist and are available for beekeeping. How well these obstacles are overcome and the assets are utilized will determine the rate of future expansion in Mexico's honey industry.

# APPENDIX I

TABLE 1.—MEXICO: TOTAL, MODERN, AND RUSTIC COLONIES, BY STATE, 1970

State	Colonies		
	Total	Modern	Rustic
Aguascalientes . . . . .	2,471	844	1,627
Baja California, North . . . . .	44,942	42,053	2,889
Baja California, South . . . . .	76	45	31
Campeche . . . . .	76,706	65,955	10,751
Coahuila . . . . .	16,528	5,430	11,098
Colima . . . . .	12,929	8,057	4,872
Chiapas . . . . .	29,286	11,591	17,695
Chihuahua . . . . .	26,243	9,539	16,704
Distrito Federal . . . . .	2,264	1,411	853
Durango . . . . .	27,923	7,645	20,278
Guanajuato . . . . .	105,088	43,631	61,457
Guerrero . . . . .	62,447	19,171	43,276
Hidalgo . . . . .	69,094	29,506	39,588
Jalisco . . . . .	140,819	73,119	67,700
Mexico . . . . .	121,999	51,911	70,088
Michoacan . . . . .	82,078	31,642	50,436
Morelos . . . . .	37,570	34,247	3,323
Nayarit . . . . .	46,097	22,148	23,949
Nuevo Leon . . . . .	24,594	8,843	15,751
Oaxaca . . . . .	62,662	21,245	41,417
Puebla . . . . .	76,671	35,082	41,589
Queretaro . . . . .	18,159	7,895	10,264
Quintana Roo . . . . .	17,363	11,458	5,905
San Luis Potosi . . . . .	70,328	16,073	54,255
Sinaloa . . . . .	50,158	33,380	16,778
Sonora . . . . .	28,191	25,598	2,593
Tabasco . . . . .	19,194	3,078	16,116
Tamaulipas . . . . .	34,294	8,036	26,258
Tlaxcala . . . . .	7,444	1,420	6,024
Veracruz . . . . .	138,787	55,586	83,201
Yucatan . . . . .	118,059	65,891	52,168
Zacatecas . . . . .	79,762	11,845	67,917
Total . . . . .	1,650,226	763,375	886,851

SOURCE: Censo Agrícola-Ganadero y Ejidal, 1970, Resumen General, Dirección General de Estadística, - Mexico.

TABLE 2.—HONEY: PRODUCTION IN SPECIFIED COUNTRIES AVERAGE 1968-72, ANNUAL 1974-77

(In 1,000 metric tons)

Region and Country	Average 1968-72	1974	1975	1976	1977 <sup>1</sup>
North America:					
Canada .....	21.8	20.8	21.1	25.4	28.0
Costa Rica .....	0.4	0.6	0.7	0.7	0.8
Cuba .....	4.0	5.7	6.0	6.2	6.5
Dominican Republic .....	0.8	1.2	1.1	1.2	1.2
El Salvador .....	1.4	1.5	1.6	1.7	1.7
Guatemala .....	2.6	3.1	3.2	3.5	2.4
Jamaica .....	0.7	1.1	1.2	1.2	1.2
Mexico .....	33.0	42.0	38.0	44.0	60.0
United States .....	99.9	84.0	89.1	90.6	80.0
Total .....	164.6	160.0	162.0	174.5	181.8
South America:					
Argentina .....	19.8	27.0	23.6	28.0	18.2
Bolivia .....	1.0	1.3	1.2	1.3	1.3
Brazil .....	7.0	4.1	5.0	5.5	5.5
Chile .....	6.3	6.4	6.9	7.5	8.0
Colombia .....	9.0	9.7	10.0	10.2	10.5
Uruguay .....	1.0	1.4	1.5	1.6	1.0
Total .....	44.1	49.9	48.2	54.1	44.5
Western Europe:					
Austria .....	5.7	6.1	6.0	6.0	6.0
Belgium-Luxembourg .....	1.0	1.2	1.1	1.2	1.2
France .....	10.2	9.7	9.0	20.0	5.5
Germany, West .....	14.4	16.5	8.8	22.0	16.0
Greece .....	8.6	8.6	9.1	9.9	10.0
Italy .....	6.6	6.0	6.1	6.4	6.9
Netherlands .....	0.4	0.2	0.2	0.3	0.3
Spain .....	9.2	9.5	10.5	11.0	12.0
Switzerland .....	1.7	2.5	1.1	6.0	2.0
United Kingdom .....	3.8	4.1	3.7	2.9	4.0
Total .....	61.6	64.4	55.6	85.7	63.9
Eastern Europe:					
Bulgaria .....	6.4	5.0	5.9	6.5	7.0
Czechoslovakia .....	7.2	7.9	5.0	5.5	6.0
German Democratic Rep. ....	5.9	5.9	4.5	5.0	5.5
Hungary .....	7.0	8.6	7.8	7.6	8.0
Poland .....	9.0	10.9	7.4	9.6	10.0
Romania .....	7.7	8.6	9.2	9.8	10.0
Yugoslavia .....	4.4	4.5	5.0	5.2	5.5
Total .....	47.6	51.4	44.8	49.2	52.0
Total Europe .....	109.2	115.8	100.4	134.9	115.9

—Continued—

TABLE 2.—HONEY: PRODUCTION IN SPECIFIED COUNTRIES AVERAGE 1968-72, ANNUAL 1974-77—Continued

(In 1,000 metric tons)

Region and Country	Average 1968-72	1974	1975	1976	1977 <sup>1</sup>
Total USSR . . . . .	70.0	79.0	76.1	90.0	95.0
Africa:					
Algeria . . . . .	1.1	1.4	1.4	1.5	1.5
Central African Rep. . . . .	4.0	5.0	5.1	5.1	5.2
Egypt . . . . .	5.0	8.1	7.2	9.3	9.0
Ethiopia . . . . .	17.5	18.8	19.2	19.4	18.5
Kenya . . . . .	7.0	7.6	7.8	8.0	8.5
Malagasy Republic . . . . .	10.1	11.0	11.2	11.4	11.5
Morocco . . . . .	1.5	1.8	2.0	2.1	2.2
Tanzania . . . . .	7.5	6.2	7.1	7.5	8.0
Total . . . . .	53.7	59.9	61.0	64.3	64.4
Asia:					
Afghanistan . . . . .	2.8	3.2	3.3	3.5	3.5
China, People's Rep. of . . . . .	45.0	50.0	60.0	55.0	65.0
China, Rep. of . . . . .	7.5	8.8	9.3	10.0	10.2
India . . . . .	10.0	13.0	14.0	18.0	17.0
Iran . . . . .	4.1	5.0	5.2	5.7	6.0
Israel . . . . .	1.8	1.8	1.9	2.0	2.0
Japan . . . . .	7.5	7.6	6.3	6.3	5.0
Turkey . . . . .	14.4	17.2	17.1	19.0	20.0
Total . . . . .	93.1	106.6	117.1	119.5	128.7
Oceania:					
Australia <sup>2</sup> . . . . .	18.9	21.2	20.6	21.4	17.9
New Zealand . . . . .	5.4	5.0	6.8	7.2	7.5
Total . . . . .	24.3	26.2	27.4	28.6	25.4
World Total . . . . .	559.0	597.4	592.2	665.9	655.7

<sup>1</sup> Preliminary.<sup>2</sup> Crop year beginning July of previous year. Prepared or estimated on the basis of official statistics of foreign source materials, reports of U.S. Agricultural Attaches and Foreign Service Officers, results of office research, and related information.



TABLE 3.—HONEY: EXPORTS BY SPECIFIED COUNTRIES, AVERAGE 1968-72, ANNUAL 1975-77

(In metric tons)

Country	Average 1968-72	1975	1976	1977 <sup>1</sup>
North America:				
Canada . . . . .	5,167	4,702	4,743	4,800
Costa Rica . . . . .	238	409	450	500
Cuba <sup>2</sup> . . . . .	3,494	5,007	5,632	4,000
El Salvador . . . . .	1,208	1,420	1,450	1,500
Guatemala . . . . .	2,563	2,719	3,618	2,000
Mexico . . . . .	25,484	30,097	47,837	53,033
United States . . . . .	3,428	1,810	2,129	2,504
Total . . . . .	41,582	46,164	65,859	68,337
South America:				
Argentina . . . . .	16,447	22,639	30,552	15,000
Brazil . . . . .	0	3,205	3,500	4,000
Chile . . . . .	723	1,835	2,500	2,000
Ecuador . . . . .	0	479	500	550
Total . . . . .	17,170	28,158	37,052	21,550
USSR (Europe and Asia) . . . . .	3,740	3,527	2,100	1,500
Europe:				
Bulgaria <sup>2</sup> . . . . .	2,070	1,702	2,477	3,000
Czechoslovakia <sup>2</sup> . . . . .	2,843	1,626	780	1,000
France . . . . .	1,242	1,123	941	700
Germany, West . . . . .	681	1,987	1,999	2,000
Greece <sup>2</sup> . . . . .	605	2,480	2,458	2,500
Hungary <sup>2</sup> . . . . .	5,200	7,888	6,973	6,500
Italy . . . . .	399	428	502	600
Netherlands . . . . .	416	1,057	2,172	1,500
Spain . . . . .	4,702	5,695	5,240	5,500
Romania <sup>2</sup> . . . . .	3,851	4,517	2,272	2,500
United Kingdom . . . . .	571	938	2,208	1,000
Total . . . . .	22,580	29,441	28,022	26,800
Other Countries:				
Australia <sup>3</sup> . . . . .	7,147	9,610	11,457	6,566
China, People's Rep. of <sup>2</sup> . . . . .	17,850	17,652	20,429	18,000
Israel . . . . .	369	88	756	500
New Zealand . . . . .	944	554	1,000	1,000
Total . . . . .	26,310	27,904	33,642	26,066
Grand Total . . . . .	111,382	135,194	166,675	144,253

<sup>1</sup> Preliminary.<sup>2</sup> Based on imports of major importing countries.<sup>3</sup> Crop year ending June 30 of year shown. Foreign Agricultural Service. Prepared or estimated on the basis of official statistics of foreign governments, other foreign source materials, reports of U.S. Agricultural Attaches and Foreign Service Officers, results of office research and related information.

TABLE 4.—HONEY: IMPORTS BY SPECIFIED COUNTRIES, AVERAGE 1968-72, ANNUAL 1975-77

(In metric tons)

Continent and country	Average 1968-72	1975	1976	1977 <sup>1</sup>
North America:				
Canada .....	406	931	1,813	1,500
United States .....	8,246	21,038	30,120	28,981
Total .....	8,652	21,969	31,933	30,481
Europe:				
Austria .....	3,102	3,473	4,131	3,936
Belgium and Luxembourg .....	2,291	3,183	3,555	4,084
Denmark .....	1,319	1,084	1,223	1,500
France .....	4,960	5,771	5,618	4,500
Germany, West .....	45,482	50,761	50,078	51,241
Italy .....	1,439	929	1,109	1,000
Netherlands .....	2,999	4,358	5,818	5,000
Sweden .....	566	962	1,478	1,944
Switzerland .....	3,725	4,241	4,707	5,000
United Kingdom .....	16,771	17,479	13,912	14,732
Yugoslavia .....	1,168	2,704	4,814	4,500
Total .....	83,822	94,945	96,443	97,437
Other countries:				
Hong Kong .....	613	592	1,091	1,000
Iran .....	7	24	666	795
Japan .....	15,470	18,091	23,749	24,838
Total .....	16,090	18,707	25,506	26,633
Grant Total .....	108,564	135,621	153,882	154,551

<sup>1</sup> Preliminary. Foreign Agricultural Service. Prepared or estimated on the basis of official statistics of foreign governments, other foreign source materials, reports of U.S. Agricultural Attaches and Foreign Service Officers, results of office research, and related information.

TABLE 5.—WEST GERMANY: HONEY IMPORTS BY COUNTRY OF ORIGIN, AVERAGE 1968-72, ANNUAL 1975-77

(In metric tons)

Country of origin	Average 1968-72	1975	1976	1977 <sup>1</sup>
Argentina .....	6,361	7,008	8,155	6,518
China, People's Rep. of .....	5,078	7,359	7,450	4,672
Cuba .....	2,548	4,107	2,971	1,266
El Salvador .....	1,036	816	1,544	1,406
Guatemala .....	1,937	2,235	2,173	2,333
Hungary .....	1,293	2,016	1,707	1,550
Mexico .....	12,391	13,502	13,041	20,938
United States .....	1,581	1,433	1,664	2,977
USSR .....	760	1,556	701	1,205
Other .....	12,497	10,729	10,672	8,376
Total .....	45,482	50,761	50,078	51,241

<sup>1</sup> Preliminary.

Source: Official trade statistics of West Germany.

TABLE 6.—UNITED STATES: HONEY IMPORTS BY COUNTRY OF ORIGIN, AVERAGE 1968-72,  
ANNUAL 1975-77

(In metric tons)

Country of origin	Average 1968-72	1975	1976	1977 <sup>1</sup>
Argentina . . . . .	1,317	5,644	8,397	4,144
Australia . . . . .	121	2,293	1,205	20
Brazil. . . . .	27	1,799	914	1,003
Canada. . . . .	1,394	3,295	2,480	6,830
China, People's Rep. of . . . . .	24	208	254	200
Costa Rica . . . . .	70	9	40	137
Dominican Rep. . . . .	147	333	336	351
El Salvador . . . . .	38	333	293	439
Guatemala . . . . .	109	193	330	523
Honduras . . . . .	12	94	332	112
Mexico . . . . .	4,600	6,121	14,065	14,839
Other . . . . .	387	716	1,474	383
Total . . . . .	8,246	21,038	30,120	28,981

<sup>1</sup> Preliminary.

SOURCE: Compiled from official records of the U.S. Dept. of Commerce, Bureau of Census.

TABLE 7.—MEXICO: AVERAGE BULK HONEY PRICES, BY PRODUCTION REGIONS,  
SELECTED YEARS

(U.S. cents/kilogram)

Year	Regions				
	North	Pacific Coast	Central Plateau	Gulf Coast	Yucatan Peninsula
1965 . . . . .	20.5	21.6	23.5	17.6	10.5
1968 . . . . .	21.1	21.2	23.7	18.0	12.0
1970 . . . . .	27.8	26.5	31.5	27.1	22.8
1973 . . . . .	41.1	39.3	43.8	41.1	39.2
1977 . . . . .	80.0	73.4	84.9	100.5	76.0

Source: Estimates based on Mexican Government and trade source materials.

## APPENDIX II

### LIST OF EXPORTERS OF HONEY IN MEXICO

Apicola Maya de Mérida  
Mérida, Yucatán, Mexico  
Sr. Plinio Escalante G., Manager  
Tel. 1-25-35

Comité Apícola Peninsular A.C.  
Avenida Itzaes No. 590  
Edificio Planeación  
Merida, Yucatán, Mexico  
Sra. Guillermina Aragón Vda de T., Executive  
Tel. 1-55-69

Hansa Lloyd de Mexico  
Apdo. Postal 20-535  
Mexico 20, D.F.  
Dr. Ernst O. Hopf  
Tel. 5-24-62-49

Impulsora y Exportadora Nacional, S. de R. L. de C.V.  
Venustiano Carranza No. 3-6 Piso  
Mexico 1, D.F.  
Lic. Rito Raul Villalobos S., General Manager  
Honey Division  
Tel. 5-13-28-28 or 5-10-85-09

Mexi Miel, S.A.  
Apdo. Postal 705  
Veracruz, Veracruz, Mexico  
Phone: 3-19-93

Miel Carlota, S.A.  
Av. Cuahatemoc Pte. 506  
Cuernavaca, Morelos, Mexico  
Sr. Juan Wulfrath C.  
Phone: 2-10-01

Planta Purificadora de Miel de Abeja - Bangrario  
Calle 26, No. 187  
Colonia Garcia Gingroz  
Mérida, Yucatán, Mexico  
Sr. Menalio Mesquita, Administrator  
Tel. 1-48-86

SOMECOEX, S.A.  
Florenia 37 P. H.  
Mexico 6, D.F.  
Sr. Jurgen H. Beier, Director  
Tel: 533-44-93

Union Nacional de Apicultores  
Av. Uruguay 42-101  
Mexico 1, D.F.  
Sr. Javier Pineda Ruiz  
Tel. 5-12-88-01

Vera Miel, S.A.  
Apdo. Postal 205  
Veracruz, Veracruz, Mexico  
Phone: 3-19-93

Inclusion in this partial list does not constitute endorsement by the U.S. Government.







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